

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application.

Claims 7-11, 13-16, and new claims 17-23 are pending in this application. Claims 1-6 and 12 are canceled. Claims 17-19 are independent. Amendments are made to the specification and to claims 7, 9-11, and 13-16.

Reconsideration of this application, as amended, is respectfully requested.

Claim for Priority

The Examiner is requested to acknowledge Applicants' claim for foreign priority under 35 U.S.C. §119 and receipt of the certified copy of the priority document filed with the application on September 8, 2000.

Drawings

Applicants have not received a Notice of Draftsperson's Patent Drawing Review, Form PTO-948, indicating whether the formal drawings have been approved by the Official Draftsperson. It is respectfully submitted that the drawings comply with the requirements of the USPTO. Clarification with the next official communication is respectfully requested.

Acknowledgement of Information Disclosure Statement

The Examiner has acknowledged receipt of the Information Disclosure Statement filed September 8, 2001, and has returned an initialed copy of the Form PTO-1449. No further action is necessary at this time.

Specification

The specification has been amended to correct obvious typographical errors at page 4, line 1, and in the paragraph beginning at page 5, line 19.

Rejections under 35 U.S.C. §103(a)

Claims 1, 2, 4, and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,154,890 to Deopuria et al. in view of U.S. Patent No. 6,195,440 to Warnaka et al. Claims 1, 3 and 6- 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Deopuria et al. in view of U.S. Patent No. 2,912,605 to Tibbetts. Claims 12-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Deopuria et al. in view of U.S. Patent No. 5,479,521 to D'Avolio et al. These rejections are respectfully traversed.

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, claims 1-6 and 12 have been canceled. New claim 17 has been added to recite a piezoelectric speaker comprising a combination of elements, including a frame having an opening therein, a piezoelectric film located on one side of said frame and covering said opening, a laminating film attached to said one side of said frame

and covering said piezoelectric film, and a detachable fastener integrally formed on said laminating film for fastening said piezoelectric speaker to an inner surface of a helmet.

New claim 18 has been added to recite a piezoelectric speaker comprising a combination of elements in a piezoelectric speaker apparatus including a frame having an opening therein, a piezoelectric film located on one side of said frame and covering said opening, a laminating film attached to said one side of said frame and covering said piezoelectric film, and a fastener secured to said laminating film for fastening said piezoelectric speaker to one side of a helmet.

New claim 19 has been added to recite a piezoelectric speaker system comprising a piezoelectric film speaker functioning as a main surface, oscillating in response to an input signal and having a peripheral edge thereof supported by a frame having a center opening, wherein an electrode wiring connects to the piezoelectric film speaker and passes through a runoff portion in the vicinity of an edge of the frame.

Applicants respectfully submit that these combinations of elements, as set forth in new independent claims 17-19 are not disclosed or made obvious by the prior art of record, including Deopuria et al., Warnaka et al., Tibbetts or D'Avolio et al., taken alone or in any combination.

Applicants respectfully submit that in contrast to the Applicants' claimed invention, the helmet earcup taught by Deopuria et al. merely includes an earcup shell 40 having a shell aperture 40b at a closed end through which a speaker wire from speaker 60 passes, as shown

in Fig. 3. Deopuria et al. does not teach or suggest combinations of elements including a frame having a runoff portion in the vicinity of an edge of the frame allowing an electrode wiring passing through the runoff portion and connect to a piezoelectric speaker or a detachable fastener integrally formed on the laminating film for fastening the piezoelectric speaker to an inner surface of a helmet, or a fastener secured to the laminating film for fastening the piezoelectric speaker to one side of a helmet, as required by the presently claimed invention.

The Office Action relies on Warnaka et al. for a teaching of a piezoelectric film having a peripheral edge supported by a frame having a center opening used for a speaker. However, Warnaka et al. does not teach the above-mentioned limitations of the presently claimed invention and, therefore, does not cure the deficiencies of Deopuria et al.

With respect to the rejections of claims 1, 3, and 6-11, the Office Action relies on Tibbetts for teachings of the structure of a piezoelectric film speaker and transducer. However, Tibbetts does not teach the above-mentioned limitations of the presently claimed invention, and therefore does not cure the deficiencies of Deopuria et al.

With respect to the rejections of claims 12-16, the Office Action relies on D'Avolio et al. for teachings of a frame with claws and recesses. However, D'Avolio et al. does not teach the above-mentioned limitations of the presently claimed invention, and therefore does not cure the deficiencies of Deopuria et al.

It is respectfully submitted that independent claims 17-19 are in condition for allowance. With regard to the dependent claims, since they depend, either directly or indirectly, from independent claims 17-19, they are allowable for at least the reasons set forth above.

Request for References

It is stated on page 4 of the Office Action that it is well known in the art to substitute a laminated film covering for the diaphragm film covering for the piezoelectric film of the combination as an alternate choice to protect the piezoelectric film from damage. At page 5, the Office Action states that "it is well known in the art that the flexing of a standard piezoelectric film is in the range of approximately 500mm." Applicants courteously request that the Examiner cite publications in support of the contention that these practices are, in fact, well known.

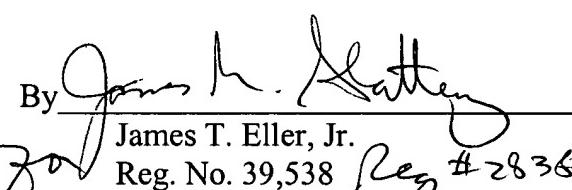
CONCLUSION

All the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants, therefore, respectfully request that the Examiner reconsider the outstanding objection and rejection and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, he is invited to telephone Sam Bhattacharya, Reg. No. 48,107, at 703-205-8000.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,
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By 
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505-673P
Attachment
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MARKED-UP COPY OF AMENDED CLAIMS

IN THE SPECIFICATION:

Please delete the paragraph at page 4, line 1.

Please amend the paragraph beginning at page 5, line 19, as follows:

Further, the frame 202 has its longer sides curved with a radius of curvature of approximately 210mm to 360mm in order to curve the piezoelectric film speaker 201 with the predetermined radius of curvature (of approximately 210mm to 360mm), as shown in Fig. 6 in an exaggerated state. The shorter sides of the frame 202 (shown in Fig. 5) may be flat or be slightly curved with [the] a radius of curvature of approximately 500mm.

IN THE CLAIMS:

Please cancel claims 1-6 and 12 without prejudice or disclaimer.

Please amend claims 7, 9-11, and 13-16 as follows:

7. (Amended) The piezoelectric speaker according to claim [6] 17, wherein said frame is substantially rectangular.

9. (Amended) The piezoelectric speaker according to claim 8, wherein a curvature of said frame has a radius of curvature in a range of [210mm] 210 mm to [360mm] 360 mm.

10. (Amended) The piezoelectric speaker according to claim [6] 17, wherein said fastener is a hook-and-loop fastener.

11. (Amended) A helmet including the piezoelectric speaker defined in claim [6] 17, said piezoelectric speaker being fixedly attached on an inner surface of a shell of said helmet.

13. (Amended) The piezoelectric speaker according to claim [12] 18, wherein said fastener is a hook-and-loop fastener.

14. (Amended) The piezoelectric speaker according to claim [12] 18, said first frame including a film-receiving recess for receiving said piezoelectric film therein.

15. (Amended) The piezoelectric speaker according to claim [12] 18, wherein said frame is substantially rectangular.

16. (Amended) A helmet including the piezoelectric speaker defined in claim [12] 18, said piezoelectric speaker being fixedly attached on an inner surface of a shell of said helmet.

Claims 17-23 are added.